



Modeling the Impact of Sustainable Intensification on Landscapes and Livelihoods using System Dynamics

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Project Aim



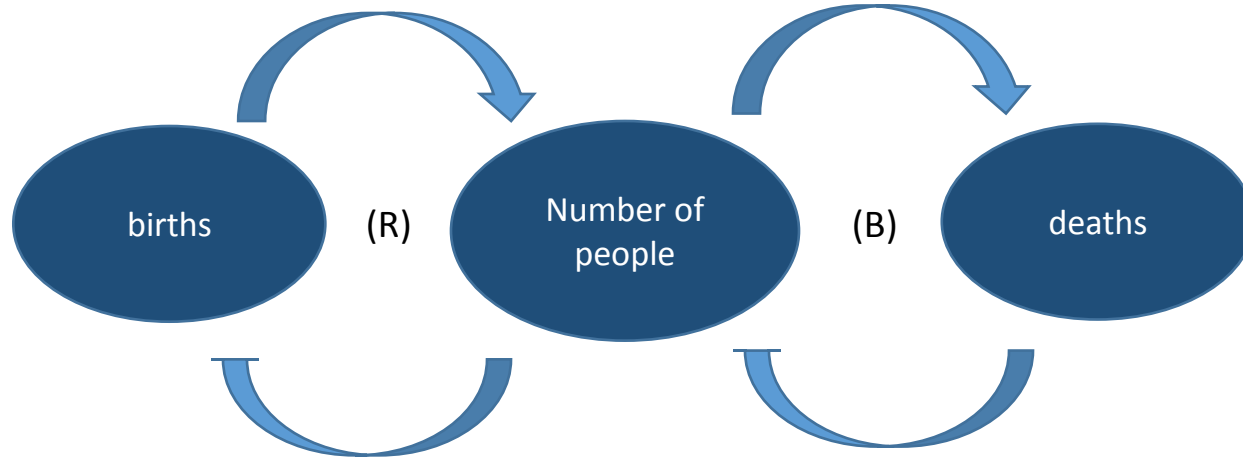
Provide an evidence base for the linkages between field- and farm-scale sustainable agricultural intensification interventions and climate change mitigation and biodiversity conservation in Zambia (focus on Eastern & Lusaka Provinces)

Project Methods:

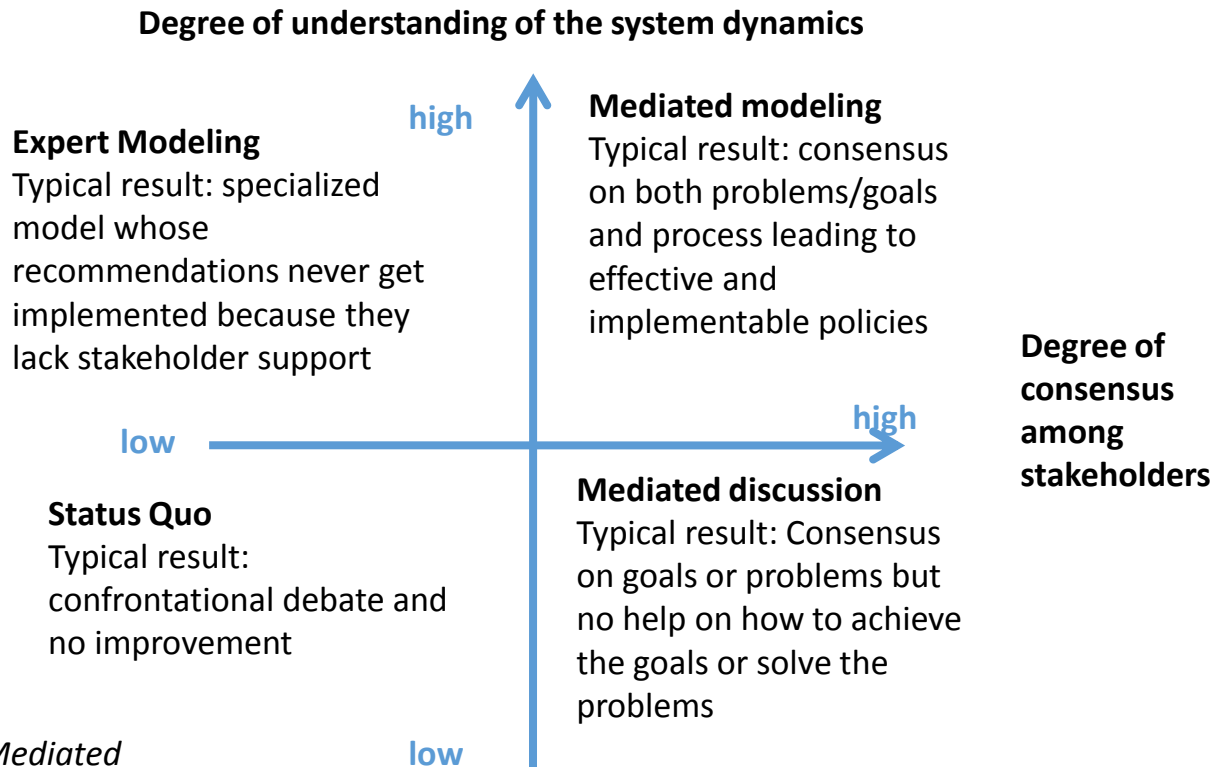


- Literature, data search and synthesis
- Participatory system dynamics modeling
- Spatial analysis

System dynamics modeling: feedback, stocks and flows, nonlinearity



Participatory Modeling in SES's



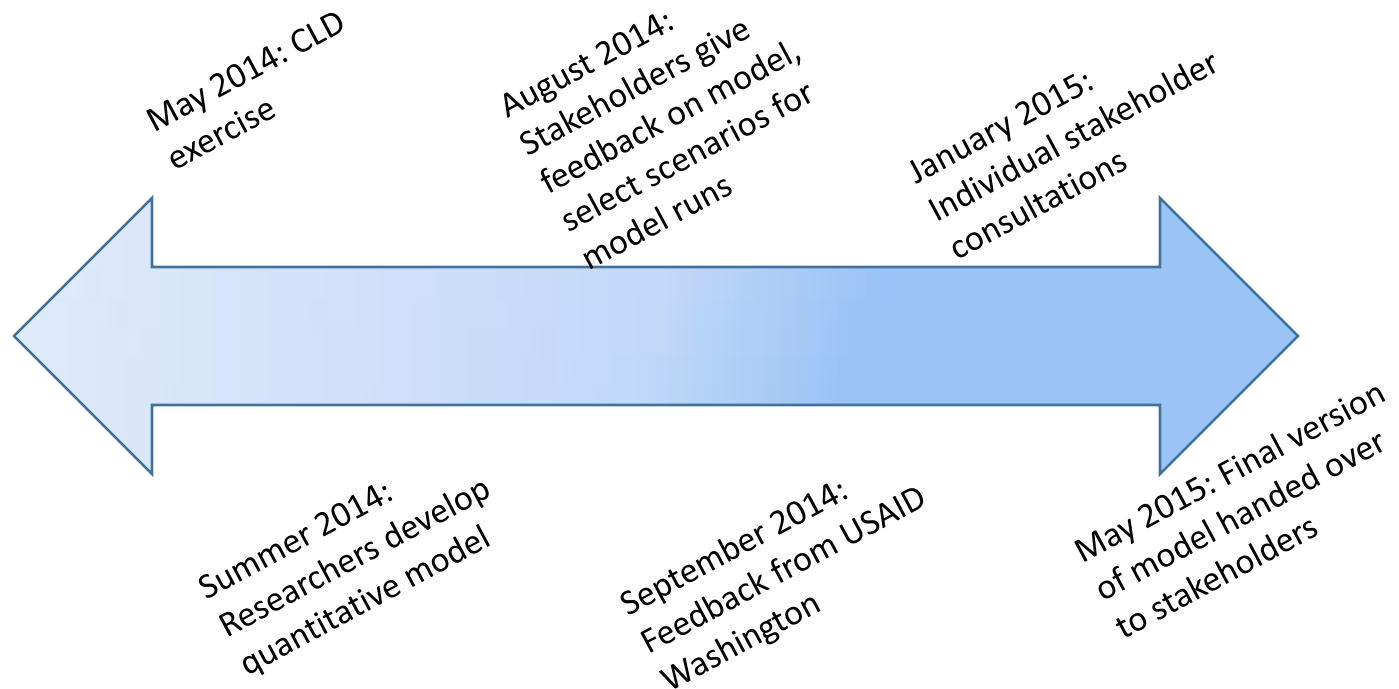
Source: Van den Belt, *Mediated Modeling*

Who are our Stakeholders?

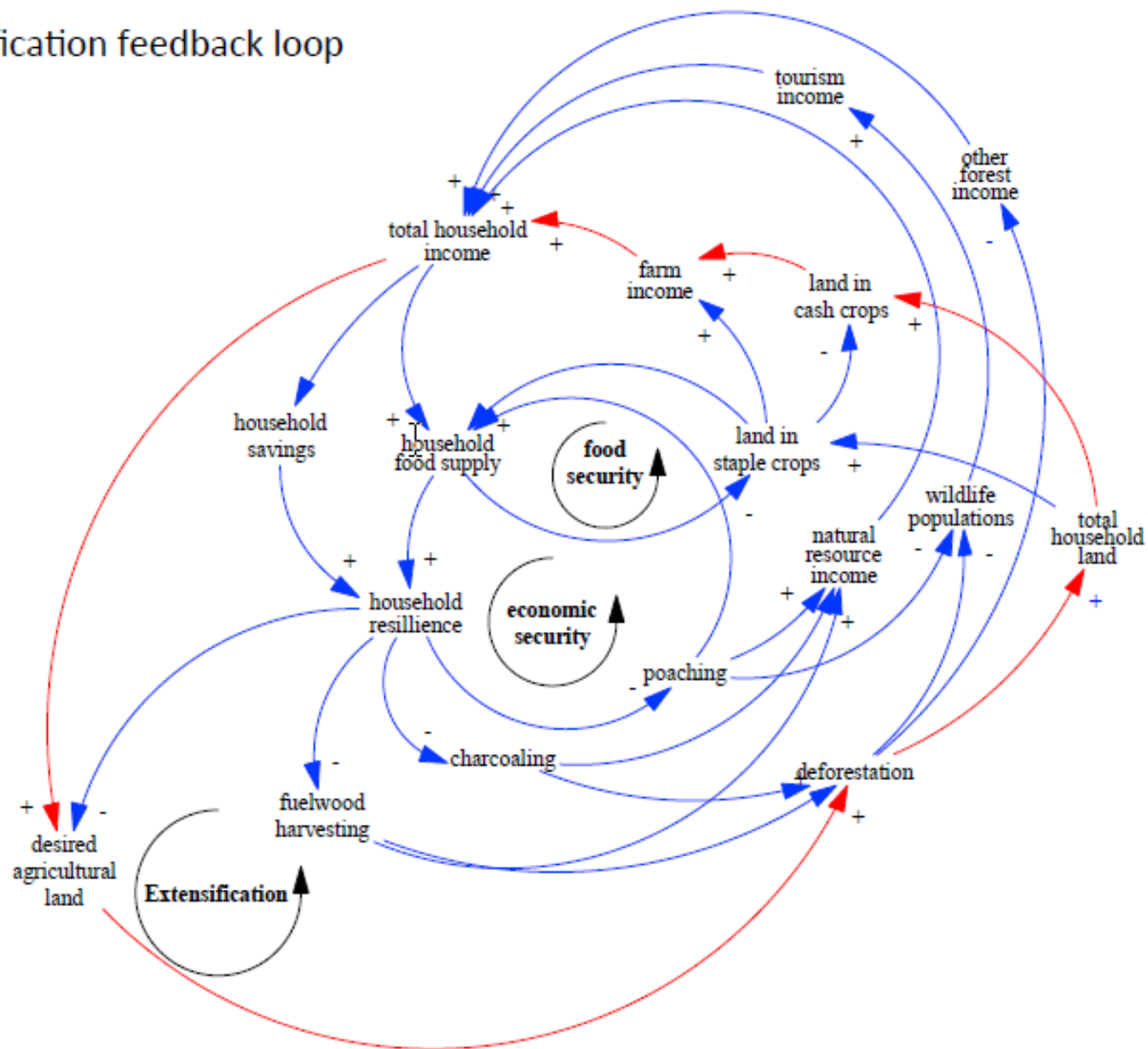


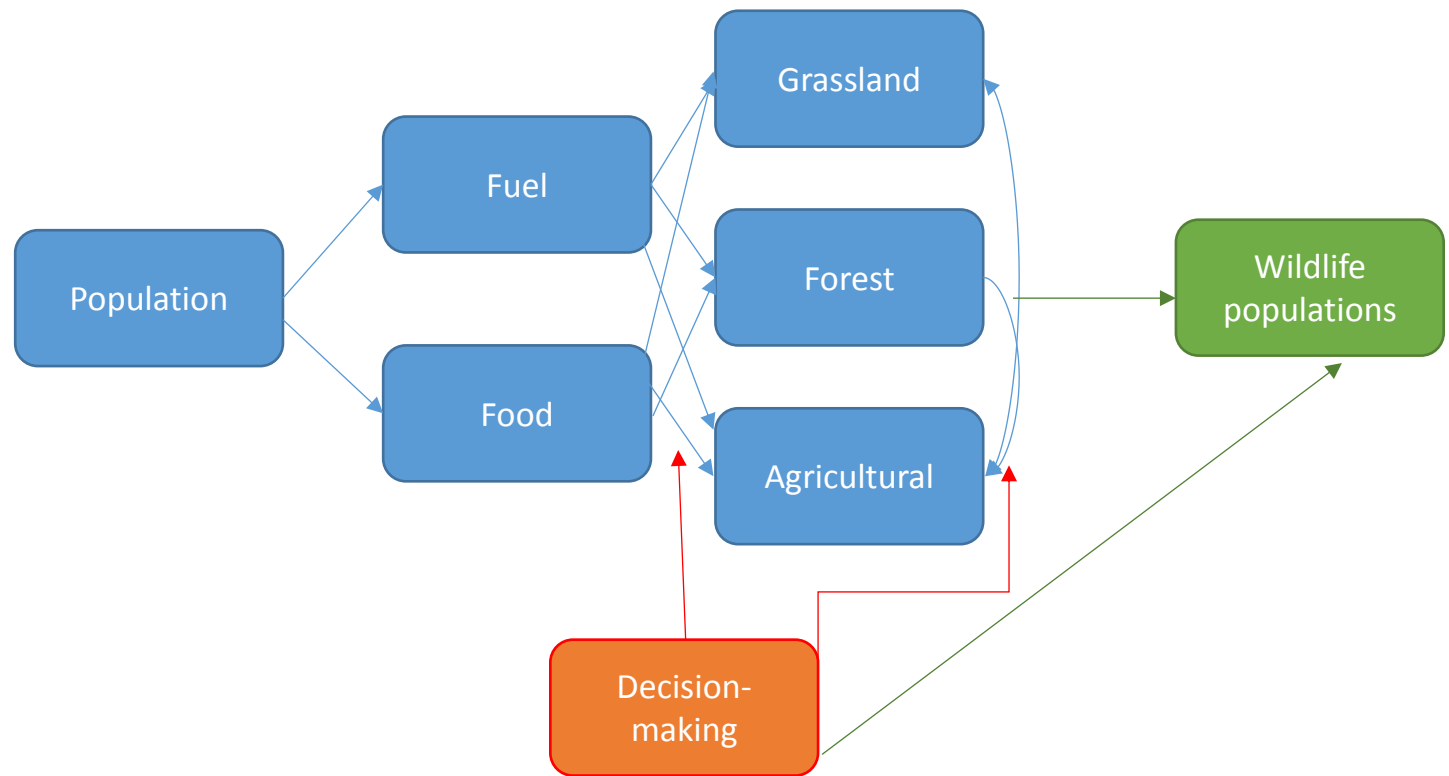
- USAID Washington
- USAID Zambia Mission
- COMACO
- IAPRI
- SIMLEZA
- Total Land Care
- BioCarbon Partners
- CIFOR
- Africa RISING
- Zambia Carnivore Research
- South Luangwa Conservation Society

Stakeholder engagement timeline

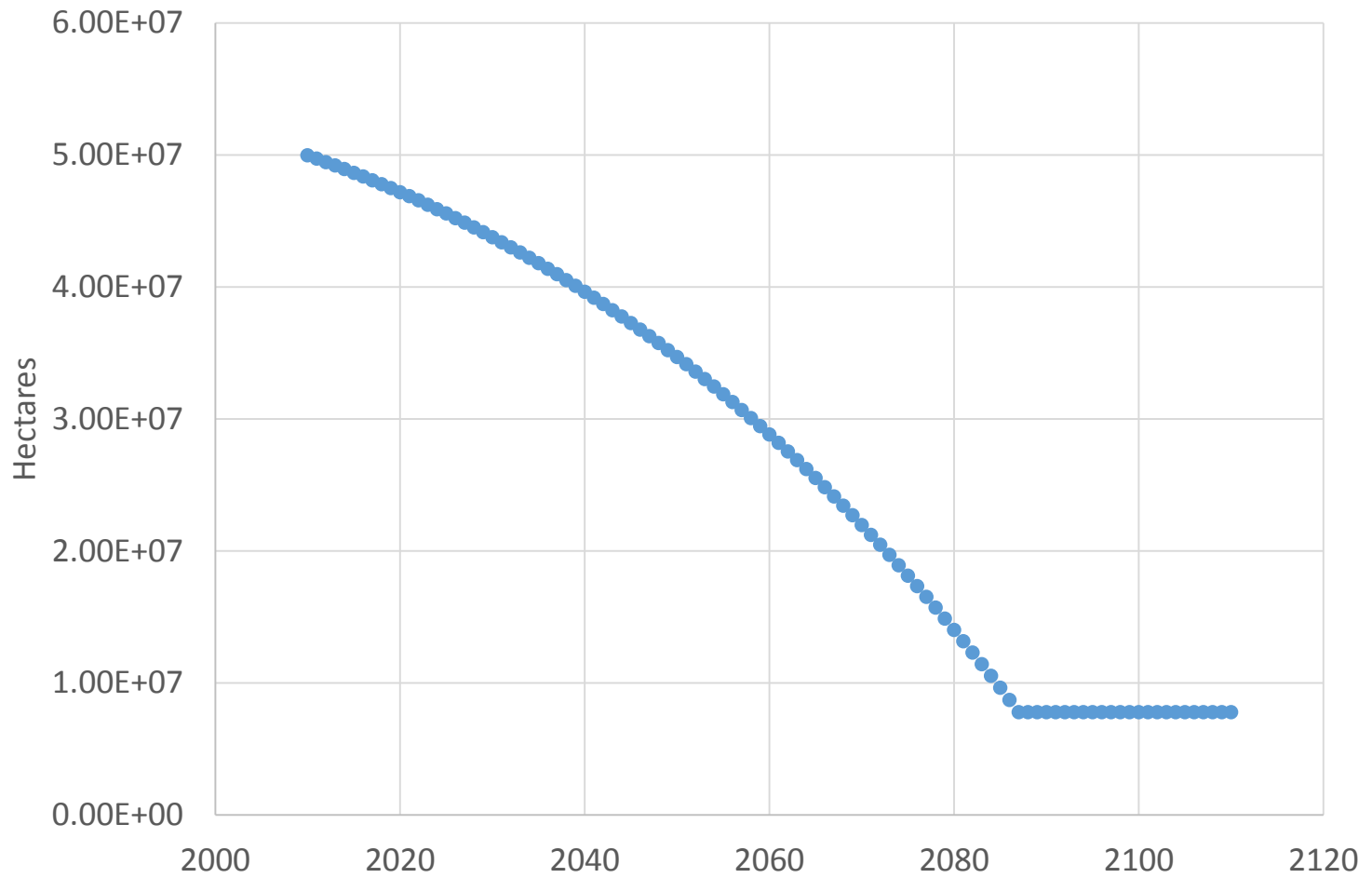


Extensification feedback loop

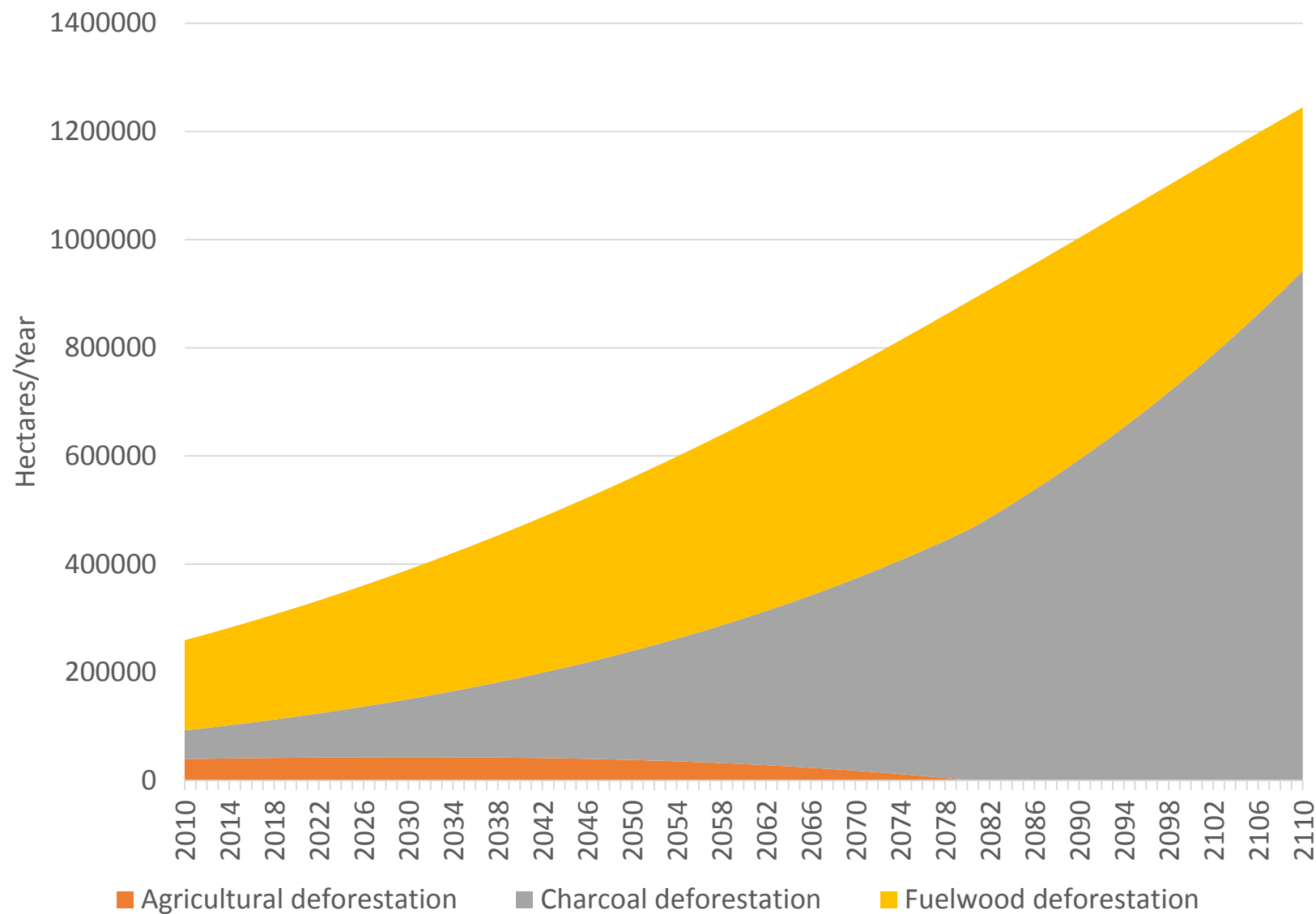




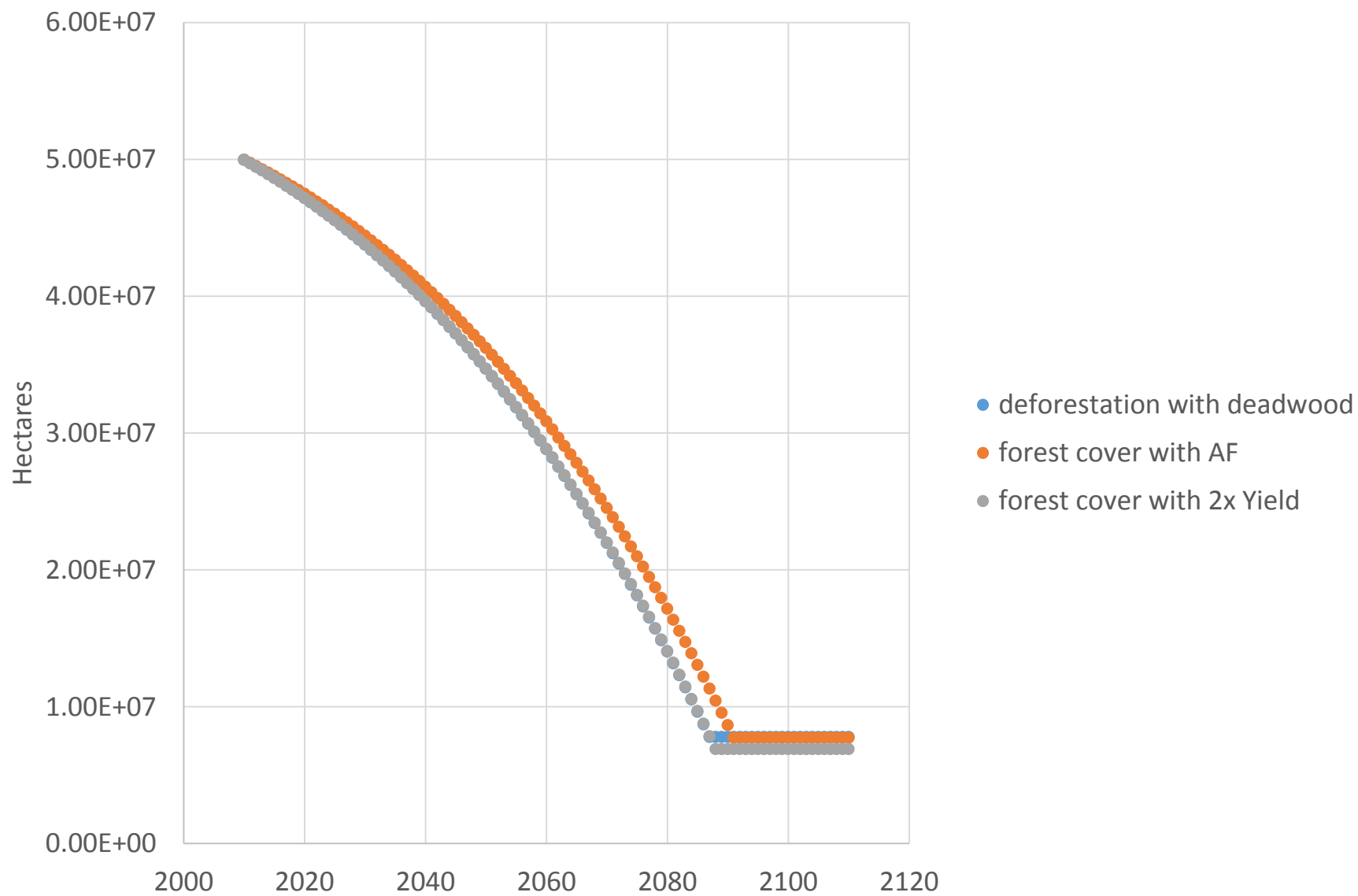
Forest Cover in Zambia, 2010-2110



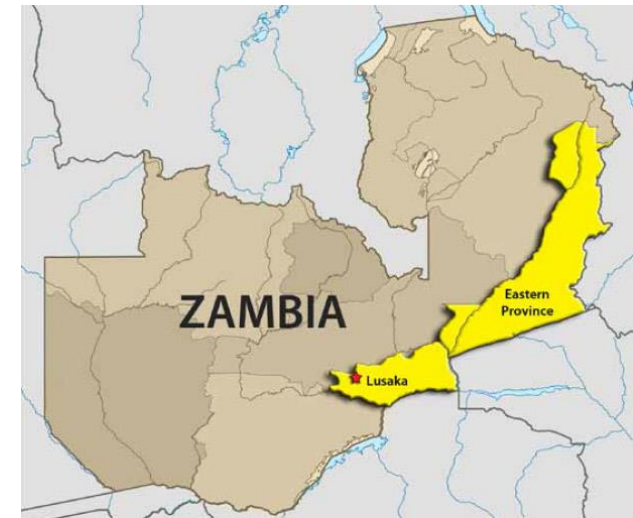
Major Causes of Deforestation, 2010-2110



Forest Cover with SI Interventions, 2010-2110

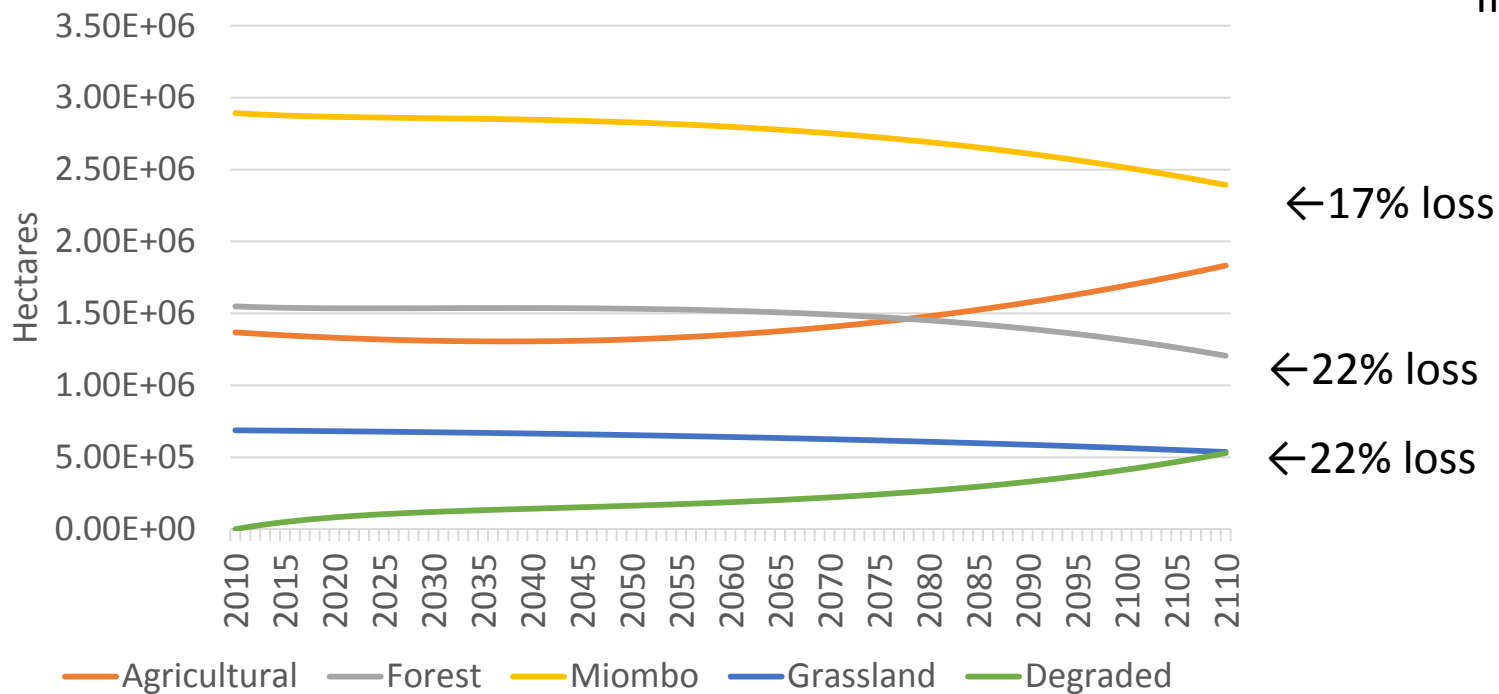


Eastern Province Model



Ifdc.org

Land Cover in Eastern Province 2010-2110



(Preliminary) Conclusions:

- Smallholder farmers are not dominant drivers of habitat degradation
- Conservation agriculture unlikely to affect habitat degradation either positively or negatively
- Focus should be on charcoal, large-scale commercial farming
- We don't know much about poaching...or GMAs
- Eastern province may be okay...unless charcoal business expands





Thank You

Africa Research in Sustainable Intensification for the Next Generation

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